Flag on the Play: Using Technology to Tackle Self Reporting of Concussions in Collegiate Football

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Problem

43% of college football players fail to report their concussions in order to remain in a game, resulting in mental and physical impairments that can lead to death.

Solution:

Sensors and Tests Take Self Reporting Out of Play

1. OPTICAL IMPACT MONITOR
The optical impact monitor uses an accelerometer to measure impact velocity. The OIM also monitors eye movement to mimic how the brain moves during impact.

2. NANO COMPOSITE FOAM
Nano composite foam uses triboelectric response to measure impact and the amount of energy transferred to the head upon impact.

Implementation and Assessment: The Playbook

Partner with the NCAA for case study testing
Implement helmet sensors to sample of Division 1 players
Collect data to assess accuracy of sensor to detect concussions
Evaluate, modify, and revise the sensor app system

Impact on Players

Decrease in Cognitive and Motor Activity
Long Term Mental Illness and Suicide
Multiplied Risk of another Concussion

Baseline Testing
Visual, and Short-Term Memory Tests (Memorizing words, sentences)
Tests will provide scores, used for analysis in the event of brain trauma.

Sideline Testing
Similar to baseline, quick short-term and visual memory tests
Will immediately recommend taking a player out or not

Post-Test Analysis
Compares baseline and post sideline test scores
Recommends a doctor visit if deemed necessary

App: The Concussion Playbook

1. Receives Data from Player Sensors and alerts when a potential concussion is detected
2. Provides quick, sideline concussion testing and analysis.

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Key References